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Abstract for an Invited Paper  
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**Polymer dynamics, the Edwards tube model and neutron scattering.**

JULIA HIGGINS, Department of Chemical Engineering, Imperial College, London

Sam Edwards' papers with Masao Doi describing polymer dynamics and rheology based on the tube model were published just as high resolution quasi-elastic neutron scattering experiments achieved the resolution capable of observing directly some of the effects of the tube. The talk will summarize these experiments as well as later work on polymer inter-diffusion across interfaces observed by neutron reflection, where again the tube model is used to interpret the data.